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# Sharing Presence: Can and should your tweets be automated?

## **Sushmita Subramanian**

Intel Labs, People and Practices Research  
3600 Juliette Ln  
Santa Clara, CA 95054 USA  
sushmita.subramanian@intel.com

## **Wendy March**

Intel Labs, People and Practices Research  
20270 NW Amber Glen Court  
Beaverton, OR 97006 USA  
wendy.march@intel.com

## **Abstract**

The explosive growth of status update tools indicates that people have a strong interest in sharing details of their daily lives and reading about the lives of others. The emerging possibilities of using sensors to infer a person's context (what they're doing, who they're with, where they are, and how they're feeling) offer the potential for making this type of frequent documentation more automatic. We conducted two studies to understand what people want to share, with whom, and what challenges they currently face with existing sharing applications. The studies used surveillance, self documentation and interviews to uncover attitudes towards sharing. In this paper, we discuss what people share, key problems with which participants struggle in existing sharing applications and the potential ways in which sensors or additional features could address their needs.

## **Keywords**

Social networking, sensors, context aware

## **ACM Classification Keywords**

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

## **Study Protocol**

### *"I am a sensor"*

We performed a shadowing study with 10 participants from the San Francisco Bay Area, CA and Portland, OR. In this study we trailed individuals for two to three hours acting as if we were the sensors. We took photos and recorded what we thought they were doing based on what we would "know" if we were in fact a sensor. We then did follow-up interviews to understand if we captured what they would want to say about what they were doing, whether they would share those captured moments, and with whom.

### *Photo-blogging*

We conducted a five-day study with nine participants using a commercial photo-blogging iPhone application called Clowdy [5]. Participants took photos throughout their day and tagged the photos with status updates that described what they would want to share and with whom. Participants took 15-30 photos per day for the five days. After the five days, we met individually with each participant to discuss their images and captions. We asked participants to categorize the images they took and who they would share them with.

## **Participants**

We targeted participants primarily in their 20s who were familiar with social sharing applications, such as Facebook, Twitter, Flickr, and blogs. We invited participants to draw upon their experiences with existing tools in our discussions. We also included two couples in these studies to see if there were distinctions in how people shared with their partners opposed to other contacts.

## **What people share**

The exhortation of Twitter to share "what are you doing?" or Facebook's question "What's on your mind?" has influenced a change from only sharing day-to-day intimate details with a small close-knit group to sharing the mundane and intimate with both close friends and complete strangers [3, 13, 15]. But despite popular rhetoric (e.g. 40% of Twitter updates are "babble" [13]), we found that many updates are also deliberately not about the mundane and everyday. Rather, many are carefully crafted updates that are intended to reflect different aspects of an individual.

We learned from our participants that sharing is all about making a statement about who you are to your audience(s). Similar to fashion, there is a self-consciousness and self-reflection when deciding what to share. People have different motivations to share based on their different styles and the audience they have in mind. Our research revealed the following categories of motivations for sharing: crafting one's professional or personal brand, championing a cause, contributing to a targeted/specialized area, highlighting a personal moment, providing light entertainment, coordinating with someone, tracking a professional or personal goal, revealing one's intimate inner thoughts, and of course, telling people what you are doing. Each of these motivations is intended for different audiences – sometimes a specific person like a partner, a set of friends, an interest or professional group, or sometimes the wide world.

## **Key findings**

### *Managing identities across audiences*

We discovered a few main issues involved in managing multiple identities across different audiences. Firstly,

existing tools do not allow users to select a different audience for different types of updates. Several of our participants tried to get around this by using different applications or profiles within an application, with each intended for a different set of people. However, this situation usually spun out of control as new people added them as contacts or discovered their other profiles. Secondly, even with the ability to specify an audience, there is work involved in defining and maintaining these different audiences as people and relationships change. Thirdly, our research revealed that participants did not always have specific people in mind for their audience, but rather a general group which related to how they spend their time or their common interests (e.g. contacts in the design industry, people I'd hang out with on a Saturday night or my cat-loving friends).

#### *Push vs. pull*

We discovered that participants made very different decisions about what to share based on how the shared content was delivered: pushed to an audience vs. pulled by interested parties. We found that people were very self-conscious about broadcasting things that might be perceived as boring for fear that their audience would think they were trying to be interesting and failed. However, for the most part, they were fine with others seeing this data if they pulled it themselves. They thought that if interested parties could 'pull' this data, then there would be a self-filtering process where only their most intimate friends/family would end up looking. In other words, participants only wanted to 'push' or broadcast the interesting, well-crafted updates to the world and allow their close contacts to 'pull' more personal and mundane content.

#### *Levels of detail*

Our participants were primarily concerned about whether content was appropriately interesting/relevant to their different audiences. For example, a colleague may want to know which meeting you are in, while a friend just wants to know whether you have left work yet. Participants also expressed that they didn't always want to reveal the whole accurate story but instead they wanted to pick and choose how much of their context to share with different groups. We found that there was no binary sense of wanting to share vs. not share content, which agrees with past research [6], instead they wanted to share various levels of detail to different audiences. Since it is very difficult to filter different content to different audiences, participants currently handle this by adding vagueness when they want to leave room for plausible deniability [1]. They expressed they would want a way to direct different amounts of detail to different parties based on relevance or appropriateness.

#### **Sensors and other solutions**

Based on the three key problems we identified, we have a few design guidelines to consider for sharing applications.

Based on the issues in managing identities across audiences, it would be helpful for sharing applications to go beyond the current ideas of audience list creation and explore the notion of dynamic groups that are based on how people spend their time or common interests. This may be one area in which sensors could play a helpful role by tracking who you are interacting with and in what context. Based on your content, the sensor system may be able to suggest contacts that seem most relevant. This would account for changing

relationships. Sensors in these scenarios could also help you understand the patterns of who you interact and share with, which could give you a better sense of your online presence.

To consider the dynamic between pushed vs. pulled content, we suggest exploring the idea of pulled content as a default setting. In this type of system, users' shared content would, by default, be pulled by interested parties rather than broadcasted and the content would not be logged. This may alleviate the pressure people feel to make their content interesting when it is pushed or always accessible for people to view and make judgment on their interestingness. People can then opt to explicitly broadcast the carefully crafted content that they use to shape their personal brand.

The ability to control the level of detail shared was important to our participants. This has the benefit of plausible deniability and allows for the notion of "saving face" in relationships [1]. We suggest something like a zoom feature that allows people to select how much detail to show to different groups. This addresses some privacy concerns about revealing too much information, and allows the right level of information to be delivered to each audience member.

As previously stated, a lot of shared content is aimed at storytelling – either to craft a personal brand or to strengthen a personal relationship. Sensors will not replace an individual's ability to personalize and storytell, particularly for those updates that are carefully crafted and pushed to the larger public audiences. However, information from sensors could be used for updates intended for the small intimate circles,

which usually involve the minor details of everyday life. These updates would be about what a person is doing, who they are with, where they are, or potentially even how they are feeling (for example their stress levels). This information could then be pulled by a person's close contacts when desired.

### **Conclusion**

We analyzed a range of sharing behaviors in order to understand people's sharing habits and the challenges they face with existing sharing applications. We then studied how sensors might be used to address those challenges and enhance social networking interactions. Sensors have the potential to improve the sharing experience by automatically tracking social and behavioral patterns, and can streamline the creation of automatic updates based on context or mood. Additionally, the information from sensors can assist in the complicated task of defining different audience groups, the appropriate level of detail for updates, and whether an update should be delivered via the "push" or "pull" method. It is not advisable to broadcast anything from sensors without some editorial control, but sensors still have incredible potential to assist in the sharing process.

**SUSHMITA SUBRAMANIAN** is a User Experience Researcher and Designer in People and Practices Research, Intel Labs. Her current research focuses on the design of context aware mobile devices. Sushmita's previous research has included the design of technology and science applications for use by citizens.

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### Citations

- [1] Aoki, P. M., & Woodruff, A. (2005). Making Space for Stories: Ambiguity in the Design of Personal Communication Systems. *CHI*, (pp. 181-190).
- [2] Barkhuus, L., Brown, B., Bell, M., Sherwood, S., Hall, M., & Chalmers, M. (2008). From Awareness to Repartee: Sharing Location Within Social Groups. *CHI*, 497-506.
- [3] Binder, J., Howes, A., & Sutcliffe, A. (2009). The Problem of Conflicting Social Spheres: Effects of Network Structure on Experienced Tension in Social Network Sites. *CHI*, .
- [4] Boyd, D. (2008). Facebook's Privacy Trainwreck. Convergence: *The International Journal of Research into New Media Technologies*, 13-20.
- [5] *Cloudy*. (n.d.). Retrieved from Cloudy: <http://www.cloudy.com>
- [6] Consolvo, S., Klasnja, P., McDonald, D.W., Avrahami, D., Froehlich, J., LeGrand, L., Libby, R., Mosher, K., & Landay, J. (2008). Flowers or a Robot Army? Encouraging Awareness & Activity with Personal, Mobile Displays. *UbiComp* (pp. 54-63).
- [7] Consolvo, S., Smith, I. E., Tabert, J., & Powledge, P. (2005). Location Disclosure to Social Relations: Why, When, & What People Want to Share. *CHI* (pp. 91-90).

**WENDY MARCH** is a Research Manager and Senior Designer in People and Practices Research, Intel Labs Her current research focuses on the design of mobile devices. Wendy's previous research has included the design of money to reflect social values, smart streets, the use of technology by teenage girls, and the design of technologies for use by communities.

- [8] Gross, R., Acquist, A., & Heinz, H. (2005). Information Revelation and Privacy in Online Social Networks. *WPES* (pp. 71-80).
- [9] Iachello, G., Smith, I. E., Consolvo, S., Abowd, G. D., Hughes, J., Howard, J., et al. (2005). Control, Deception, and Communication: Representing Location in Location-based Social Awareness Systems. *UbiComp*, (pp. 139-142).
- [10] Ito, M. (200). Intimate Visual Co-Presence. *UbiComp*.
- [11] Lottridge, D., Masson, N., & Mackay, W. (2009). Sharing Empty Moments: Design for Remote Couples. *CHI* (pp. 2329-2338).
- [12] Nardi, B. A., Schiano, D. J., & Gumbrecht, M. (2004). Blogging as Social Activity, or, Would You Let 900 Million People Read Your Diary? *CSCW*.
- [13] *Pear Analytics*. (n.d.). Retrieved from Pear Analytics: <http://www.pearanalytics.com/2009/twitter-study-reveals-interesting-results-40-percent-pointless-babble/>
- [14] Tsai, J., Kelley, P., Drielsma, P., Cranor, L. F., Hong, J., & Sadeh, N. (2009). Who's Viewed You? The Impact of Feedback in a Mobile Location-Sharing Application. *CHI*.
- [15] Zhao, D., & Rosson, M. B. (2009). How and Why People Twitter: The Role that Micro-Blogging Plays in Informal Communication at Work. *ACM*, 243-252.